S–2728	Sub. Code 23BCE1C1

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Computer Science

PROGRAMMING IN C

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Token.
2. Write the syntax of Conditional Operator.
3. How to format input and Output variable?
4. Illustrate Switch Statement.
5. What is Dynamic array?
6. How to initialize string variables?
7. Compare call by value and call by reference.
8. What are bit fields?
9. Write a note on Pointer.
10. How to Open and Close file? Explain.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss about Data types in detail.

Or

(b) How to evaluate expressions? Explain.

12. (a) Write the procedure to read and write a character.

Or

(b) Illustrate if else statement in detail.

13. (a) How to declare One Dimensional array? Explain.

Or

(b) Write the procedure to handle string functions.

14. (a) How to define user defined function? Explain.

Or

(b) How to declare Structure variable in C?

15. (a) Write the procedure to use Pointer as function arguments.

Or

(b) Discuss about Command Line arguments.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about type conversion in expression.

17. Illustrate Nesting of if else statement.

18. Write the procedure to declare two dimensional arrays with suitable program.

19. Write a C program to perform Recursion Operations.

20. What are the IO operators on files? Explain with example.

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S–2729	Sub. Code
	23BCEA1

B.Sc. DEGREE EXAMINATION, APRIL 2024

Computer Science

Allied – DIGITAL LOGIC FUNDAMENTALS

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Convert the decimal number 72 to its binary representation.

2. Define Universal Gate.

3. Write a note on K-Map.

4. Compare Adder and Subtractor.

5. What is parity Checker?

6. Write a note on encoder.

7. Define Register.

8. Illustrate RS Flip Flop.

9. What is Counter?

10. What are the types of ROM?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Convert Octal number 245 to its binary and decimal forms.

Or

(b) Write short notes on Binary Codes.

12. (a) Using Boolean Algebra, Slow that A+AB=A for any Boolean variable A.

Or

(b) Illustrate about Subtractor with neat sketch.

13. (a) Explain the concept of Demultiplexer.

Or

(b) Write short note on Parity Generator.

14. (a) Describe the operation of D flip flop.

Or

(b) Compare SISO and SIPO Shift Registers.

15. (a) Describe the concept of synchronous binary counter.

Or

(b) Write short note on types of RAMs.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the basic operations of Universal Gate with truth table.

17. Apply Demorgan's Theorem to simplify the expression.

    F(A,B,C) = (A+B)' * (A'+C)'

18. Describe the function of 2 to 4 decoder and provide its truth table.

19. Illustrate JK Flip Flop with circuit diagram.

20. Design a Ring Counter using Flip Flop.

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S–2730	Sub. Code
	23BCE1S1

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Computer Science

FUNDAMENTALS OF INFORMATION TECHNOLOGY

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write a note on ALU.

2. Define Memory.

3. Compare Impact and Non impact printer.

4. What is terminal? List its type.

5. Differentiate EPROM and EEPROM.

6. Define Zip Drive.

7. What is meant by Software? List its type.

8. List the advantages of High Level Language.

9. Compare Compiler and Interpreter.

10. Write a note on Multi tasking.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Illustrate the generation of Computer.

Or

(b) What are the limitations of Computer?

12. (a) Write short notes on pointing devices.

Or

(b) Discuss about Touch Screen.

13. (a) Compare Primary Vs Secondary storage.

Or

(b) Write short notes on Floppy disk.

14. (a) Discuss in detail about Machine Language.

Or

(b) Write a brief note on Graphics.

15. (a) Write the Characteristics of Assembler.

Or

(b) Discuss about Time Sharing System.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain the applications of Computer.

17. Write a detailed note on Scanner and its type.

18. Illustrate Optical disk with neat sketch.

19. Describe about spread sheet presentation in detail.

20. Write in detail about Multiprogramming System.

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S–2731	Sub. Code 23BCE1FC

B.Sc. DEGREE EXAMINATION, APRIL 2024

First Semester

Computer Science

PROBLEM SOLVING TECHNIQUES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write a note on CPU.
2. List the feature of good programming language.
3. Illustrate Flowchart symbols.
4. Write a note on pseudocode.
5. Define Logical Operators.
6. What is repetition structure?
7. Write a note on character data.
8. How to define One Dimensional array?
9. Define Subprogram.
10. Write a note on Files.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Discuss about Secondary Storage devices.

Or

(b) Compare 4 GL and 5 GL.

12. (a) Write short notes on Data types.

Or

(b) List the Benefits and drawbacks of algorithm.

13. (a) Discuss the concept selection from several alternatives.

Or

(b) What are the applications of repetition structure?

14. (a) Compare Numeric and Character Based Data.

Or

(b) Write a note on two dimensional array.

15. (a) Write about scope of a variable.

Or

(b) Discuss in detail about sequential file.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Illustrate types of computers in detail.

17. Describe the symbols of flowchart and its type in detail.

18. Explain in detail about nested loops.

19. How to declare string as arrays of characters? Explain.

20. Write the symbols of DFD and its types.

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S–2732

Sub. Code
23BCE2C1

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Computer Science

OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A ($10 \times 2 = 20$)

Answer **all** questions.

1. Mention the key concepts of Object Oriented Programming.
2. Define Data Hiding.
3. Write the rules of Variables.
4. Give the syntax for Member Function definition outside the class.
5. What is meant by Reusability?
6. Delineate Abstract class.
7. Specify the characteristics of Arrays.
8. Discriminate new and delete Operator.
9. List out the types of Manipulator.
10. State Exception Specification.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain the difference between Procedural Programming and OOPs.

Or

(b) Enlighten the concept of Inline function with example.

12. (a) Explicate static member variables and Functions.

Or

(b) Differentiate Constructor and destructor with Suitable example program.

13. (a) Discuss Type casting and Type Conversion in C++.

Or

(b) Write down a C++ program to implement function overloading.

14. (a) Describe Pointers to derived classes and Base Classes.

Or

(b) Briefly discuss the following

(i) Dynamic Object and Binding

(ii) Polymorphism.

15. (a) Elucidate Binary and ASCII files .

Or

(b) Enlighten the concept of Templates and Miscellaneous Functions.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Illustrate C++ Control structure and its declaration with example.

17. Defining Classes and Objects and how to declare it with example.

18. Describe Inheritance and its types with example Program.

19. Write a C++ program for Matrix Multiplication program using multidimensional Array.

20. Differentiate Sequential Read/Write and Random Access Operations.

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S–2733	Sub. Code
	23BCEA2

B.Sc. DEGREE EXAMINATION, APRIL 2024

Computer Science

Allied — RESOURCE MANAGEMENT TECHNIQUES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** the questions.

1. What is operations research?

2. List out the three types of linear programming.

3. How do you solve transport problems?

4. What is Modi method?

5. What is an assignment problem in operations research?

6. Which is used to solve an assignment problem?

7. What is sequencing problems?

8. What are types of sequence problems?

9. What is CPM in operation research?

10. What are the uses of CPM and PERT?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Identify the feasible region for the following set of constraints :

$$2A - 1B \leq 0$$
$$-1A + 1.5B \leq 200$$
$$A, B \geq 0$$

Or

(b) Does the following liner program involve infeasibility unbounded, and / or alternative optimal solutions? Explain.

Maximize $1A + 1B$

Subject to $8A + 6B \geq 24$
$2B \geq 4$
$A, B \geq 0$

12. (a) Solve the following transportation problem for minimization.

To	I	II	III	IV	V	a_i
A	20	19	14	23	16	40
B	15	20	13	19	16	60
C	18	15	18	20	100	70
b_j	30	40	50	40	60	

Or

(b) A company having plants at P, Q and R supplies to the warehouses at w, x, y and z. Monthly plant capacities are 75, 95 and 120 respectively. Monthly warehouse requirements are 55, 65, 75 and 100 respectively. Unit shipping costs are as follows.

	w	x	y	z
P	18	21	15	12
Q	16	22	26	15
R	16	15	16	17

Determine the optimum distribution for this company minimize the shipping costs using Vogel's Aproximation method for initial solution.

13. (a) Three jobs A, B, C are to be assigned to three machines x, y, z. the processing cost*s* (in Rs.) are as given in the matrix shown below. Find the allocation which will minimize the overall processing cost.

	Machine		
Jobs	A	B	C
x	19	28	31
y	11	17	16
z	12	15	13

Or

(b) (i) Explain the Hungarian methods of solving an assignment problem for minimization.

(ii) Solve the following assignment problem for minimization with cost (in Rupees) matrix as:

	Machine				
Jobs	A	B	C	D	E
1	4	10	3	4	8
2	7	2	6	7	7
3	10	5	8	11	4
4	3	6	5	3	2
5	10	7	3	5	7

14. (a) Find an optimal sequence for the following sequencing problem of four jobs and five machines when passing is not allowed, of which the processing time (in hours) is given below.

	Machine				
Jobs	A	B	C	D	E
1	7	5	2	3	9
2	6	6	4	5	10
3	5	4	5	6	8
4	8	3	3	2	6

Or

(b) We have five jobs and each of which has to go through the machines, A, B and C in the order A B C. Processing times are given below.

Processing time (mts)

Job	A	B	C
1	40	50	80
2	90	60	100
3	80	20	60
4	60	30	70
5	50	40	110

Determine a sequence for the five jobs that will minimize the elapsed time T.

15. (a) Consider the following project. Draw an arrow diagram to represent the project.

Activity	A	B	C	D	F	G	H	I
Precedence	–	–	A	A	B, C	F	B, C, D	H, G

Or

(b) For a project of 12 activities the details are given below. Draw PERT network.

Activity	A	B	C	D	E	F	G
Dependence	–	–	–	B, C	A	C	E
Activity	H	I	J	K	L		
Dependence	E	D, F, H	E	I, J	G		

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write the following linear program in standard form :

Max $5A + 2B$

Subject to

$1A - 2B \leq 420$
$2A + 3B \leq 610$
$6A - 1B \leq 120$
$A, B \geq 0$

17. Find the starting solution in the following transportation problem with cost elements using.

(a) North west corner method.

(b) Least cost method

(c) Vogel's approximation method

Compare the computations.

From	To				Available
	P	Q	R	S	
A	10	20	10	8	10
B	12	10	13	9	20
C	12	7	10	10	30
D	15	8	2	0	40
E	4	10	7	20	50
Required	60	60	20	10	

18. A construction company has five bull dozers at different locations and one bull dozer is required at three different construction sites. If the transportation cost are as shown, determine the optimum shipping schedule.

Location Shipping cost (0'000 Rs.) construction site

	A	B	C
1	20	30	40
2	70	60	40
3	30	50	80
4	40	60	50
5	40	60	30

19. A machine shop has six machines : A, B, C, D, E and F. Two jobs have to be processed through each of these machines. The time spent on each machine and the necessary sequence of the jobs through the shop are given below.

Job : A-40 C-20 D-20 B-60 E-50 F-30

Job 2 : A-20 C-60 B-30 D-20 F-30 E-40

Find the order in which the jobs should be done to minimize the total time to finish both jobs. Find also the idle time for the jobs.

20. The following table gives the activities in a construction project.

Activity	Normal time (days)	Crash time (days)	Normal cost (Rs.)	Crash cost (Rs.)
1-2	20	17	600	720
1-3	25	25	200	200
2-3	10	8	300	440
2-4	12	6	400	700
3-4	5	2	300	420
4-5	10	5	300	600
4-6	5	3	600	900
5-7	10	5	500	800
6-7	8	3	400	700

(a) Draw the activity network of the project.

(b) Find the total float and free float for each activity.

(c) Using the above information crash the activity step by step until all the paths are critical.

S–2734

Sub. Code
23BCEA3

B.Sc. DEGREE EXAMINATION, APRIL 2024

Computer Science

Allied — MARKUP AND SCRIPTING LANGUAGES

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is meant by tag?

2. Expand GIF.

3. What is the use of combo box?

4. What is password?

5. Expand DHTML.

6. Why we use CSS?

7. What is java script objects?

8. What is meant by string?

9. What is the use of layers?

10. Write any two disadvantages of AJAX.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Write a short note on HTML.

Or

(b) Discuss about Heading and Horizontal rules.

12. (a) How to work efficiently with images in web pages?

Or

(b) Discuss about adding multimedia.

13. (a) Describe about extensible mark-up Languages (XML).

Or

(b) Write a note on Synamic HTML.

14. (a) Explain Server Side Java Script.

Or

(b) Write a short note on operators in Java Script.

15. (a) Discuss about Area in associated Objects.

Or

(b) Write various advantages of AJAX.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe about paragraphs and line breaks.

17. Explain data collection with HTML forms.

18. Discuss about CSS through DCOM.

19. Explain about conditional and looping statement.

20. Describe about General Information about Events.

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S–2735	Sub. Code
	23BCEA4

B.Sc. DEGREE EXAMINATION, APRIL 2024

Computer Science

Allied — OPERATING SYSTEM

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write any Two operating system.
2. Define Operating System.
3. What is memory abstraction?
4. What is page replacement?
5. What is Deadlock?
6. Write any two uses of android.
7. What is Linux System?
8. What is the uses of CD directories?
9. Expand AWK.
10. What is batch Commands?

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Explain about Operating System Concepts.

Or

(b) Describe about scheduling.

12. (a) Explain about virtual memory.

Or

(b) Discuss about MS-DOS file System.

13. (a) Discuss about no memory abstraction.

Or

(b) Illustrate about Interfaces to Linux.

14. (a) Explain about basic architecture of Linux System.

Or

(b) Describe in detail about checking disk free spaces.

15. (a) Discuss about scheduling of process at command.

Or

(b) Illustrate about shell Keywords.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Explain about Operating System Structure.

17. Discuss about file System Implementation.

18. Illustrate about NT based Windows.

19. Explain about creating and viewing files.

20. Discuss about following commends in Linux.

    (a) Printing commands

    (b) grep

    (c) fgrep

    (d) Sort.

S–2736

Sub. Code
23BCE2S1

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Computer Science

OFFICE AUTOMATION

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer ALL questions.

1. How to open and save the Word file?
2. What are the editing tools in a Word document?
3. Discuss the header functions in document formatting.
4. Write the indentation in document formatting.
5. Mention the options used for copying the data in the Excel sheet.
6. List the printing options used in the Excel sheet.
7. Specify the data records used in MS-Access.
8. Give a note on searching the data in MS-Access.
9. Write a note on viewing slides in the PowerPoint.
10. What are the steps to create a simple slide show in PowerPoint.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) What are the tools used in word documents?

Or

(b) Give an example of using the formatting option in a Word document.

12. (a) Discuss the paragraph alignment in the document formatting with its example.

Or

(b) How do the numbering is specified in the document? Give an example.

13. (a) Write a note on opening the Excel sheet with an example.

Or

(b) List out the formatting options in the Excel sheet.

14. (a) Briefly discuss the reports in MS-Access.

Or

(b) Specify the creation of tables in MS-Access.

15. (a) Mention the features of PowerPoint.

Or

(b) Write down the steps For including the pictures and objects in the PowerPoint.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. How does the spell checker work in a Word document?

17. Give a detailed note on the printing preview with its example.

18. Demonstrate the formulas used in the Excel sheet with an example.

19. Elucidate the sorting and indexing data in MS-Access.

20. To create the PowerPoint by using animation effects, and audio inclusion.

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S–2737

Sub. Code
23BCE2S2

B.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Computer Science

INTRODUCTION TO HTML

(CBCS – 2023 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer ALL questions.

1. What is W3C?
2. What is an element in HTML?
3. What are the sections of a HTML document?
4. What is the usage of <Head> .-.-.-.-. </Head> element?
5. What is BR and HR in HTML?
6. Write the nesting list in HTML.
7. What is Rowspan in HTML?
8. What is meant by Targeted links?
9. Mention the features of Forms in HTML.
10. Write the purpose of legend element in HTML.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Illustrate the differences between internet and Intranet.

Or

(b) Difference between a Webpage and a Website.

12. (a) Give the overview and structure of HTML documents.

Or

(b) Explain the importance of semantic elements in HTML.

13. (a) What is Hyperlink? And Write a HTML code for creating Hyperlink.

Or

(b) What is Marquee? And Write a HTML code for creating Hyperlink.

14. (a) Explain briefly about Table elements in HTML with an example.

Or

(b) Explain briefly about Frame elements in HTML with an example.

15. (a) Write a HTML code to create a form to get student semester marks.

Or

(b) Write a HTML code to create a form to get customer details.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain in detail about the Web 3.0?

17. Describe in detail about the Font style elements of HTML with an example.

18. Explain in detail about lists in HTML with an example for each list.

19. Write a HTML program to display your-class time table.

20. What are HTML form elements? Develop a student registration form for PG Entrance Examination using HTML Form elements.

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